

# 2012 WETLAND MITIGATION MONITORING REPORT FOR THE SCCC & DIAMOND SITE

**Town of Kearny**

**Hudson County, New Jersey**

□ SCCC Site - Block 287, Lots 48, 49, 50, 51, 52, 52R and portion of Lot 32.01

□ Diamond Site - Block 287, Lots 32.02, 46, 47, and 47R

**Prepared for:**

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**Prepared by:**

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Project Number: 502.014

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333145



## **TABLE OF CONTENTS**

<b>Section</b>	<b>Page #</b>
<b>1.0 INTRODUCTION.....</b>	<b>2</b>
<b>2.0 PRE-CONSTRUCTION SITE ENVIRONMENT.....</b>	<b>5</b>
<b>3.0 WETLAND MITIGATION IMPLEMENTATION.....</b>	<b>6</b>
<b>4.0 WETLAND PLANTING.....</b>	<b>7</b>
<b>5.0 MONITORING INSPECTION .....</b>	<b>7</b>
<b>5.1 Undesirable Plant Species.....</b>	<b>9</b>
<b>5.2 Hydrology.....</b>	<b>9</b>
<b>6.0 CONCLUSIONS AND CORRECTIVE MEASURES .....</b>	<b>10</b>
<b>7.0 REFERENCES.....</b>	<b>12</b>

## **APPENDICES**

- Appendix 1 – Copies of Permits and Approvals
- Appendix 2 – Vegetation Cover Data
- Appendix 3 – Photographs
- Appendix 4 – As Built Plan

## 1.0 INTRODUCTION

This initial Monitoring Report describes and documents the status of the compensatory wetland mitigation at the Standard Chlorine Chemical Company, Inc. (SCCC) & Former Diamond Sites located at 1015, 1025-1035 Belleville Turnpike, Kearny, Hudson County, New Jersey (hereinafter termed the Site) (Figure 1). The property commonly known as the "Diamond Site" is 27 acres while the SCCC site totals 25 acres. The Diamond Site is being remediated pursuant to a New Jersey Department of Environmental Protection (NJDEP) Administrative Consent Order and Consent Judgment. The SCCC Site is subject to a NJDEP Administrative Consent Order and is listed on the U.S. Environmental Protection Agency's (USEPA) National Priorities List for CERCLA Sites. The implementation of the NJDEP-approved Interim Response Action Workplan<sup>1</sup> (IRAW) was overseen by the Peninsula Restoration Group (PRG), a group comprised of Standard Chlorine Chemical Co., Inc. (SCCC), Tierra Solutions, Inc. (Tierra) and Beazer East, Inc. PRG is now known as the Cooperating Parties Group (Group). The implementation of the IRAW necessitated the disturbance of on-site wetlands.

The United States Army Corps of Engineers (USACE) and the USEPA have determined that the USEPA will have jurisdiction for impacts to regulated tidal and isolated and freshwater emergent wetlands. The NJDEP authorized tidal wetland impacts associated with the implementation of the remediation activities through a Waterfront Development Permit (WDP)/Flood Hazard Permit (FHP) and Water Quality Certificate (Appendix 1). These approvals were obtained on March 26, 2010 (permit Nos. 0907-09-0007FHA 09001, 0907-09-0007.1 WFD090001 and 0907-09-0007.1 CDT0800001). The USEPA approved<sup>2</sup> of the wetland disturbance on June 11, 2010. Copies of all relevant permits and approvals related to this project are provided in Appendix 1. As a condition of these approvals a compensatory mitigation plan for impacts to the intertidal subtidal shallows and tidal wetlands was required. Accordingly, a Wetland Mitigation Plan<sup>3</sup> (WMP) prepared by Key Environmental Inc.) was designed to mitigate the loss of the existing wetland plant communities at the ratio (1:1) as set forth in the NJDEP Waterfront Development Permit/Flood Hazard Permit and Water Quality Certificate and as approved by USEPA.

In order to implement the approved IRAW activities a total of 1.65 acres of on-site wetlands were to be unavoidably disturbed. The 1.65 acres of on-site wetlands consisted of 0.06 acres of estuarine tidal wetlands, 0.47 acres of isolated wetlands and 1.12 acres of freshwater wetlands. In addition, approximately 1.3 acres of intertidal subtidal shallows (mudflats) were also to be disturbed as part of the approved remediation activities.

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<sup>1</sup> NJDEP, March 27, 2008 Interim Response Action Work Plan Approval, Standard Chlorine Chemical Company, Inc (SCC/116) and Tierra Solutions (Diamond Shamrock/113) 1015 to 1035 Belleville Turnpike, Kearny Town NJ

<sup>2</sup> USEPA, Approval of Applicable Relevant and Appropriate Requirements (ARARs).

<sup>3</sup> Key Environmental Inc, April 2010, Shoreline Restoration and Tidal Emergent Wetland Mitigation Plan, Standard Chlorine Chemical Co Inc and Tierra Solutions Inc., Interim Response Action, Submitted to the NJDEP and USEPA.

Accordingly, the WMP compensated for disturbance by providing mitigation consisting of 0.45 acres of tidal emergent wetland restoration along the Hackensack River shoreline, 1.20 acres of freshwater emergent wetlands in upland areas and the restoration of approximately 0.95 acres of intertidal sub-tidal shallows. Of the 0.45 acres of tidal wetland mitigation proposed, 0.39 acres was to compensate for an equivalent amount of upland impacts to freshwater wetlands.

The NJDEP approved the mitigation plan on June 30, 2010 (NJDEP, June 30 2010). The approval stated the following "the Division hereby approves the mitigation plan. Specifically, the Division is approving the mitigation project shown on the plan entitled "Shoreline Restoration and Tidal Emergent Wetland Mitigation Plan SCC and Diamond Sites, Kearny, Hudson County, New Jersey, Block 287-Lots, 47, 47R, 49, 52 and 52R" sheets MTGTE-00-04, dated April 23, 2010, prepared by Key Environmental Incorporated".

Once the remediation was underway it became apparent for several reasons that the proposed 0.45 acres of tidal wetland restoration would be difficult to successfully establish. One of the foremost reasons behind this determination had to do with the results of an updated topographic survey of the intertidal area was completed at the beginning of remediation activities. When the updated survey was compared to the 2008 topographic survey it revealed lower elevations along the shoreline in the area proposed for wetland restoration. The reason for the difference is unknown but the unexpected conditions were such that successful establishment of a wetland at this location became a concern and a modification to the WMP was deemed necessary.

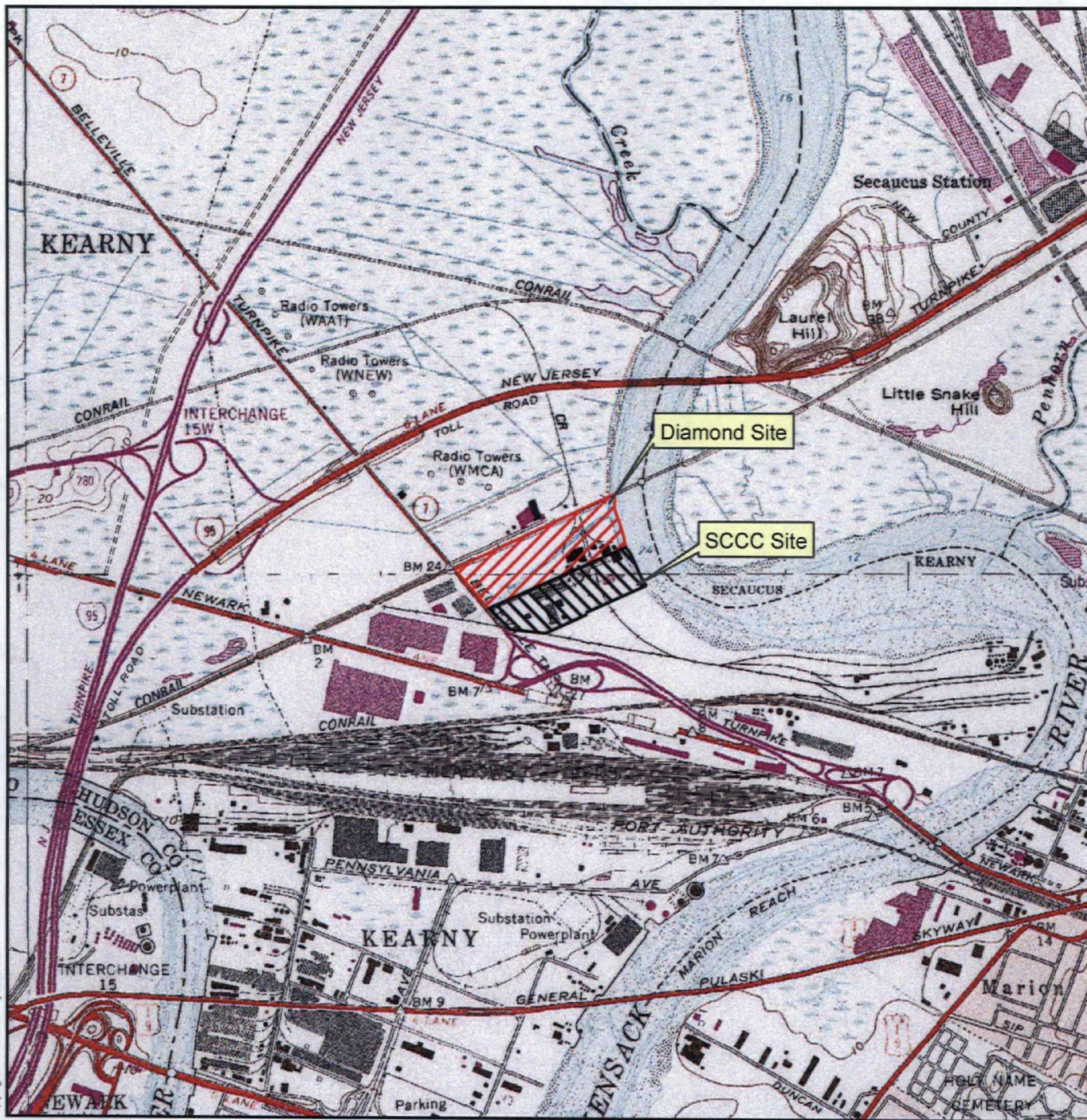
As a modification to the WMP, an April 8, 2011 letter<sup>4</sup> provided justification and a proposed combination of the purchase of off-site credits (0.225 acres) and construction of on-site intertidal sub-tidal restoration to compensate for the vegetation portion of the tidal emergent mitigation. There was no change proposed to the mitigation planned for the upland areas or the intertidal restoration. The NJDEP and USEPA approved<sup>5</sup> the overall approach set forth in the April 8, 2011 letter. Therefore, mitigation at the sites for a combined 1.65 acres of freshwater and tidal emergent wetlands will be accomplished by a combination of the construction of 1.20 acres of freshwater emergent wetlands in upland areas, the restoration of approximately 1.3 acres of intertidal sub-tidal shallows and the purchase of 0.225 wetland mitigation credits.

PRG entered into an agreement with Evergreen Environmental, LLC to purchase 0.225 acres of off-site wetland credits from the Marsh Resource MRI-3 Wetland Mitigation Bank located within the Hackensack Meadowlands. The purchase of the wetland credits was completed on June 24, 2012. The NJDEP issued a letter dated March 7, 2013 to authorize the purchase of 0.225 credits.

<sup>4</sup> Princeton Hydro, April 8, 2011, Request to Modify Wetland Mitigation Approach SCCC and Diamond Sites, Kearny, Hudson County. NJDEP Permit No. 0907-09-00071.

<sup>5</sup> NJDEP and USEPA, e-Mail Communication of July 1, 2011, Standard Chlorine Chemical Company and Diamond Sites – Wetland Mitigation.





Princeton Hydro

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### FIGURE 1: USGS LOCATION MAP

KEY ENVIRONMENTAL  
STANDARD CHLORINE CHEMICAL COMPANY &  
DIAMOND SITE  
BLOCK 287  
LOTS 46, 47, 48, 49, 50, 51, 52 & 52R  
TOWN OF KEARNY  
HUDSON COUNTY, NEW JERSEY

#### LEGEND

##### Site Boundaries

- Diamond Site
- SCCC Site

1 inch = 2,000 feet  
0 1,000 2,000  
Feet

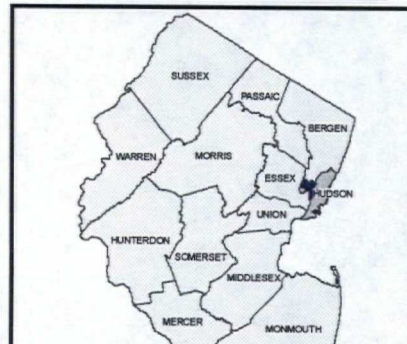


PRINCETON HYDRO, LLC.  
1108 OLD YORK ROAD  
P.O. BOX 720  
RINGOES, NJ 08551

#### SOURCES:

1. Site boundaries are not an official PLS survey; inaccuracies may exist.
2. USGS Topographic Digital Raster Graphic obtained from USDA Geospatial Data Gateway, Hudson County, New Jersey; Weehawken and Jersey City, NJ Quadrangles.

### NEW JERSEY COUNTY MAP





This monitoring report was developed based on the standard conditions required by the NJDEP for wetland mitigation sites. Data collected during the inspection period and color photographs of the mitigation site, are presented in the appendices.

## 2.0 PRE-CONSTRUCTION SITE ENVIRONMENT

As described in the wetland delineation report prepared by Princeton Hydro (May 2009)<sup>6</sup> the SCCC and Diamond sites were composed of four distinct plant communities: freshwater emergent wetland (including ditches and swales), estuarine intertidal wetland, urban upland meadow and developed land.

Developed land composed a majority of both the SCCC and Diamond Sites and was assigned to those areas in which frequent human activity and maintenance influence the composition and structure of the existing plant community. Most of this land class was associated with interim remediation areas, historic buildings, access roads, and parking lots. The vegetation in these areas was scarce but contained ruderal species and few landscaped areas consisting of ornamental plantings. The ruderal species located in this area were composed of Eastern cottonwood, staghorn sumac, common plantain (*Plantago lanceolata*), English plantain (*Plantago lanceolata*), goldenrod (*Solidago spp.*), and various grasses.

Urban upland meadow was mostly located in the north central portion of the Diamond Site and in the eastern section of the SCCC Site. Most of this community type was dominated by ruderal species typical of disturbed land, which included little blue stem (*Schizachyrium scoparium*), goldenrod (*Solidago spp.*), multiflora rose (*Rosa multiflora*), common reed, and common milkweed (*Asclepias syriaca*). Scattered throughout the urban meadow were patches of dense shrubs, which included Allegheny blackberry (*Rubus allegheniensis*), Northern bayberry (*Myrica pensylvanica*), and Russian olive (*Elaeagnus angustifolia*). A few Eastern cottonwood (*Populus deltoides*) and staghorn sumac (*Rhus typhina*) trees were scattered throughout the urban meadow.

Most of the freshwater emergent wetlands were located in the western portion of the Diamond Site and the western and southeastern portions of the SCCC Site. Some of the SCCC Site wetlands were associated with onsite drainage features such as ditches or swales. Freshwater emergent wetlands were also identified in the south-central portion of the Diamond Site, adjacent to the access road between the SCCC and Diamond Sites. This wetland area was a depressional wetland associated with stormwater runoff from the adjacent upland areas. Most of the freshwater emergent wetlands were dominated by near mono-specific stands of common reed (*Phragmites australis*). Other wetland species observed in the emergent wetlands included sensitive fern (*Onoclea sensibilis*), purple loosestrife (*Lythrum salicaria*), and jewelweed (*Impatiens capensis*).

Several wetland areas totaling 0.82 acres were determined to be isolated as there was no

<sup>6</sup> Princeton Hydro, LLC., April 8, 2011, Letter RE: Request to Modify Wetland Mitigation Approach, SCCC and Diamond Sites, Kearny, New Jersey.

evidence of hydrologic connections to other "Waters of the United States". Most of the areas that were determined to be isolated were located on the Diamond Site. The SCCC Site possessed freshwater emergent wetlands and several ditches/swales that possessed a hydrologic connection to the Hackensack River.

Estuarine intertidal wetlands and flats were located in the eastern section of both the SCCC and Diamond Sites along the Hackensack River. The approximately 0.06 acres of intertidal wetlands were composed predominantly of low marsh vegetation dominated by smooth cordgrass (*Spartina alterniflora*). The approximately 1.3 acres of intertidal habitat present on both the SCCC and Diamond Sites consisted of barren stretches of sand and fill, specifically rip-rap, within which were scattered patches of vegetation. Both the SCCC and Diamond Site shorelines contained evidence of erosion, specifically related to the presence of clumps of smooth cordgrass that were detached from their respective mats. Areas where smooth cordgrass was present appeared to be correlated to the presence of a stable substrate such as that provided by rip-rap. The rip-rap appears to be serving as an energy dissipating structure facilitating the development and stability of the smooth cordgrass mats.

### 3.0 WETLAND MITIGATION IMPLEMENTATION

As previously indicated the mitigation design initially focused on the restoration of 1.2 acres of freshwater wetland and 0.45 acres of intertidal wetland along the Hackensack River. In addition, approximately 0.95 acres of intertidal flats was to be restored along the Hackensack River. However, as described previously the implementation of the restoration of the 0.45 acres of intertidal wetlands bordering site along the Hackensack River was not constructed and the compensation for this element of the original mitigation plan was satisfied through the purchase of 0.225 wetland mitigation credits and the restoration of approximately 1.4 acres of intertidal flats. The restoration of the intertidal flats was generally completed as it was originally designed with the exception of the jacks. The jacks were omitted since the tidal wetland restoration element of the mitigation project was not implemented. Restoration of the intertidal flats was completed July 2011. The final as-built survey (MTG-01, Appendix 4) identified the total mudflat restoration area as being 1.41 acres

The mitigation plan identified the limits of freshwater wetland mitigation area that was comprised of 1.20 acres generally located in the vicinity of the SCCC drainage ditches. Although the mitigation area was generally consistent with the SCCC site drainage ditch system as per the approved design the mitigation area was extended during the construction of the mitigation area into adjacent drainage ditch areas in order to attain the required wetland acreage.

The mitigation activities were completed in November 2011. According to the final as-built survey prepared by Key Environmental Inc. the total freshwater wetland mitigation area was 1.28 acres.

## 4.0 WETLAND PLANTING

The earthwork required to construct the wetlands was completed in the fall of 2011. The planting component of the mitigation project was completed immediately after completion of the earth work and was planted in November of 2011. The type and quantity of the plant material installed at the site was dependent on the habitat type and location within the mitigation site which is summarized in the following tables. Tree and shrub species were proposed for the transition area and tree, shrub and herbaceous plant species were proposed for the wetland area. The specific species and quantity planted are presented in Table 1.

**Table 1:** Plant material proposed and installed in the restored wetland and restored transition area sites.

Freshwater Wetlands Mitigation Area		
Scientific name	Common name	Quantity
<i>Spartina patens</i>	Salt meadow cordgrass	700
<i>Distichlis spicata</i>	Salt grass	2100
<i>Spartina pectinata</i>	Prairie cordgrass	750
<i>Juncus gerardii</i>	Black grass	300
<i>Hibiscus Moschueta</i>	Swamp mallow	300
<i>Spartina cynosuroides</i>	Big cordgrass	300
<i>Solidago sempervirens</i>	Seaside goldenrod	300
<i>Scirpus robustus</i>	Salt marsh bulrush	300
<i>Panicum virgatum</i>	Switch grass	750
<i>Baccharis halimifolia</i>	Groundsel bush	240*

\* 80 clusters of 3 plants

**Table 2:** Seed used to attain rapid first year coverage in the mitigation areas.

Common name	Grass species	(lbs pure live seed/acre)
Annual rye	<i>Lolium multiflorum</i>	5
Fall panicum	<i>Panicum dichotomiflorum</i>	3
Barnyard grass	<i>Echinochloa muricata</i>	2
Switch grass	<i>Panicum virgatum</i>	4
Coastal Panic grass	<i>Panicum amarum</i>	50
Lady's Thumb	<i>Polygonum persicaria</i>	2

## 5.0 MONITORING INSPECTION

This 2012 wetland monitoring inspection was conducted on October 28, 2012 by Matrix New World (hereinafter termed Matrix). The 2012 monitoring report represents the first of three wetland mitigation monitoring reports. It is our understanding that Freshwater

Wetland Mitigation area will be monitored for a period of 3 growing seasons and depending on the trajectory at the site (and EPA's response/concurrence), the monitoring duration may be extended if necessitated. Based on the establishment of 90% coverage in the first growing season, the extension in monitoring period beyond 3 growing seasons may not be necessary.

The inspection entailed Matrix's visual inspection of the areas that were planted in the fall of 2011. The inspection began in the eastern portion of the mitigation area, adjacent to the Hackensack River, and was performed in segments moving in a westerly direction until the entire mitigation site was assessed. Visual observations regarding percent cover in each segment that was planted based on the boundaries created by the herbivore exclusion fencing which defined the limits of each segment. The percent cover of all vegetation and percent cover of invasive species including common reed (*Phragmites australis*) and purple loosestrife (*Lythrum salicaria*) present in each segment was visually estimated. An estimate of the percent survival of the herbaceous plants installed the previous year was also visually estimated. The survivorship of groundsel bush was calculated based on a count of live plants. The 2012 monitoring data is summarized in Table 1 in Appendix 2.

The results of the 2012 monitoring inspection indicated that the freshwater wetland community was well established for a wetland that was in its first complete growing season and appears to be on a desirable developmental trajectory with regard site stability and hydrology. The restored wetland area possessed a well developed emergent wetland with an overall vegetation cover of 90% (Table 3). Although the wetland possessed a significant number of desirable wetland species, invasive species consisting primarily of common reed (*Phragmites australis*) and purple loosestrife (*Lythrum salicaria*) were present throughout the mitigation site at varying densities that ranged from zero to 90%. Two of the 27 wetland mitigation segments possessed invasive species cover of 90%. Alternatively, 12 of the 27 segments possessed invasive species cover of less than 10%. The overall cover of the wetland mitigation site was 90% and cover contributed by invasive site was 37%. Due to the level of cover provided by common reed and purple

**Table 3:** Percent vegetative cover by planting zone and total cover of the mitigation area.

Vegetative Cover in Mitigation Area	2012	2013	2014
Total Vegetative cover	90%		
Invasive Species Cover	37%		

loosestrife and the aggressive nature of these plants the implementation of an invasive species management plan is necessary in order to keep the mitigation site on a positive developmental trajectory.

Survivorship of woody material was determined to be 86% (Table 4). Although this exceeds the threshold of 85% survivorship set forth in the NJDEP permit, this species tends to spread clonally and the number of stems should inverse dramatically during the three year monitoring program. In addition, the volunteer establishment of cottonwood (*Populus deltoides*) will eventually add to the number of woody plants present in the wetland.

**Table 4: Woody species and quantity initially planted within the mitigation site and the quantity surviving.**

Scientific name	Quantity Installed	Quantity Observed		
		2012	2013	2014
<i>Baccharis halimifolia</i>	240	206		
<i>Total</i>	240	206		

### 5.1 Undesirable Plant Species

Based on sampling data and general observation, the site possesses a level of cover, 37%, by undesirable invasive species including common reed and purple loosestrife that necessitates the need for adaptive management measures to curtail the spread of these species. In accordance with the standard conditions of the set forth by the NJDEP for wetland mitigation sites "the final monitoring report must include documentation demonstrating the site is less than 10% occupied by invasive or noxious species." Segments of the mitigation site were estimated to possess as much as 90% cover by invasive species while other 13 of the 27 segments of the mitigation site possessed less than 10% of the two invasive species.

### 5.2 Hydrology

The wetland mitigation site is located in a topographically low landscape position previously occupied by the site's drainage network. The wetland still receives water via direct precipitation as well as stormwater runoff from adjacent parts of the site. Since the wetland mitigation site was designed to coincide with the historic drainage network that previously existed on the site its hydrology is reliant on precipitation and stormwater runoff. Wetlands developing in this type of hydrologic environment tend to be dominated by generalist species because this hydrology can be extremely variable from month to month and from year to year. Immediately after precipitation events portions of the mitigation areas were observed to be inundated. Evidence of periodic inundation was also related to the presence of mud cracks and salt rind observed on the portions of the site proximate to the Hackensack River. Mud cracks are indicative of periodic flooding and ponding of water that subsequently evaporates or infiltrates. The hydrology of these types of wetland systems is typically benefited through the deposition and accretion of organic matter on the soils surface as the site develops. Evidence of positive indicators of wetland hydrology will continue to be evaluated throughout the course of the monitoring period.

## 6.0 CONCLUSIONS AND CORRECTIVE MEASURES

Overall the wetland mitigation site appears to be capable of satisfying its design goals and the success criteria set forth by the NJDEP for a compensatory wetland mitigation site. However, as with many mitigation sites, especially those located in highly disturbed landscape settings, the implementation of an adaptive management plan with specific corrective measures is necessary to guide the early stages of the site's development toward its desired goal (Table 5). In this case, the need for corrective measures is necessary due to the colonization of the mitigation site by invasive species. The monitoring data estimated that 37% of the mitigation site's vegetation cover is provided by invasive species. Since this is in excess of the 10% threshold set forth by the NJDEP, the implementation of an invasive species management plan is necessary. It is recommended that the management of invasive species be accomplished through a two step process that would initially involve the manual removal of individual seedlings of both common reed and purple loosestrife. Since all of the substrate was brought to the site from other sources it is our opinion that the plants colonization of the site by both common reed and purple loosestrife was via seed. As such the plants present on the site are young plants that lack a well developed root system. It is for this reason that we propose the manual removal of the plants early in the growing season as the initial step in the maintenance of these species. Subsequent to the initial manual removal any remaining plants present in the mitigation area will be treated with one of the following EPA-registered herbicides: *Aquapro* (glyphosate), *Habitat* (imazapyr), or *Clearcast* (imazamox). The final selection of product will be based on site-specific conditions including the density of common reed or purple loosestrife. A spray adjuvant and spray indicator dye will be utilized in conjunction with the herbicide to maximize the effectiveness of the treatment program. The adjuvant will enhance the performance of the selected herbicide, whereas the blue dye will enable us to ensure the complete and even application of the product. It is anticipated that the herbicide application will be performed between mid-August and mid-September. The treatment will be conducted by an NJDEP licensed aquatic pesticide applicators/operators. An aquatic pesticide treatment permit application will need to be filed and approved by the NJDEP prior to any to this work being conducted.

In the parts of the mitigation site with the highest levels of invasive species additional plantings are anticipated to in order optimize the establishment of desirable native plants. Due to the urban nature of the mitigation areas surroundings, the re-colonization by invasive species should be anticipated until the site possesses well established vegetative cover. The establishment of a dense stand of desirable vegetation is one way to reduce the future establishment and spread of invasive species. Subsequent to completion of the herbicide treatment it is recommend that sparsely vegetated and barren areas be seeded with the mix described in Table 2 and salt tolerant shrub species including groundsel bush, common elderberry (*Sambucus canadensis*), false indigo (*Amorpha fructosa*) and arrowwood (*Virburnum dentatum*). The installation of woody shrubs will be focused in those areas with the lowest survivorship of herbaceous plants and the highest cover of invasive plants.

<b>Table 5 Proposed Corrective Measures for 2013</b>	
Task 1	Manual removal of invasive species, Spring 2013
Task 2	Seeding of all areas disturbed as a result of the manual removal of invasive species proposed in Task 1, Spring 2013
Task 3	Herbicide treatment to control invasive species, August-September 2013
Task 4	Replanting of woody plants in those portions of the mitigation site with the highest coverage of invasive species, Fall 2013.

Although the presence of invasive species is problematic, the implementation of an invasive species management program should be effective in controlling both of the species present. The presence of desirable species in combination with the mitigation site's overall stability is a positive attribute for a mitigation site in its first full growing season. The implementation of the corrective measures proposed will serve to guide the site on a path that should ultimately fulfill the criteria set forth by NJDEP for compensatory wetland mitigation.



## 7.0 REFERENCES

EPA, June 11, 2010, Letter, ARARs identified and addressed prior to start of IRA, Standard Chlorine Superfund Site. Key Environmental, Inc., October 2008, Final Interim Response Action Workplan (IRAW), Standard Chlorine Chemical Company Site and Diamond Site, Kearny, New Jersey.

Evergreen Environmental, LLC, June 25, 2012 Bill of Sale and Conveyance between Evergreen and PRG for 0.225 Wetland Mitigation Credits

Key Environmental, Inc., April 2010, Shoreline Restoration and Tidal Emergent Wetland Mitigation Plan, Interim Response Action, SCCC Site and Diamond Site, Kearny, New Jersey.

Key Environmental, Inc. August 8, 2012, Construction Completion Report – Mitigation. 1015, 1025-1035 Belleville Turnpike, Kearny, Hudson County, New Jersey, SCCC Site - Block 287, Lots 48, 49, 50, 51, 52, 52R and portion of Lot 32.01, Diamond Site - Block 287, Lots 32.02, 46, 47, and 47R.

NJDEP DLUR, March 26, 2010, Waterfront Development Permit/Flood Hazard Permit, Water Quality Certificate, SCCC and Diamond Sites, Interim Response Action, City of Kearny, Hudson County.

NJDEP, June 30, 2010, Letter RE: Wetland Mitigation Plan Approval, SCCC and Diamond Sites Interim Response Action, City of Kearny, Hudson County.

NJDEP, June 30, 2010, Letter RE: Wetland Mitigation Plan Approval, SCCC and Diamond Sites Interim Response Action, City of Kearny, Hudson County.

Newcomb, Lawrence, 1977. *Wildflower Guide*.

Princeton Hydro, LLC. May 2009. Wetland Delineation Report for Standard Chlorine and Diamond, Block 287, lots 46, 47, 48, 49, 50, 51, 52 and 52r, Town of Kearny, Hudson County, New Jersey.

Princeton Hydro, LLC., April 8, 2011, Letter RE: Request to Modify Wetland Mitigation Approach, SCCC and Diamond Sites, Kearny, New Jersey.

# **APPENDIX 1**

## **Permits and Approvals**



## State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION

OFFICE OF DREDGING AND SEDIMENT TECHNOLOGY

P.O. BOX 028

TRENTON, NEW JERSEY 08625-0028

(609) 292-1250

FAX: (609) 777-1914

CHRIS CHRISTIE  
*Governor*

KIM GUADAGNO  
*Lt. Governor*

BOB MARTIN  
*Acting Commissioner*

Mr. Peter W. Sawchuck, P.E.  
Project Manager  
Key Environmental Incorporated  
456 Route 22 West  
Suite D  
Whitehouse Station, New Jersey 08889

March 26, 2010

RE: Waterfront Development Permit/Flood Hazard Permit, Water Quality Certificate  
Applicant: Standard Chlorine Chemical Inc. and Tierra Solutions, Inc.  
Application No(s): 0907-09-0007.1 FHA 090001 (Flood Hazard Permit)  
0907-09-0007.1 WFD090001 (In-Water Waterfront Development Permit)  
0907-09-0007.1 CDT0800001 (Water Quality Certificate)  
Project: Standard Chlorine Chemical Inc. (SCCC) and Tierra Solutions, Inc. (Diamond Site)  
Interim Response Action  
City of Kearny, Hudson County  
Block: 287, Lots 48,49,50,51,52,52R and portion of lot 32.01 (SCCC site)  
Block: 287, Lots 32.02, 46, 47 and 47R (Diamond Site)

Dear Mr. Sawchuck:

Enclosed, please find an approved construction permit. Please read the permit and its terms and Conditions carefully. If you consider yourself aggrieved by our decision regarding your application, you may request a hearing by completing the requirements of the attached *administrative hearing request checklist and tracking form*. Unless you request a hearing to contest this permit or its conditions, you have accepted its terms and conditions.

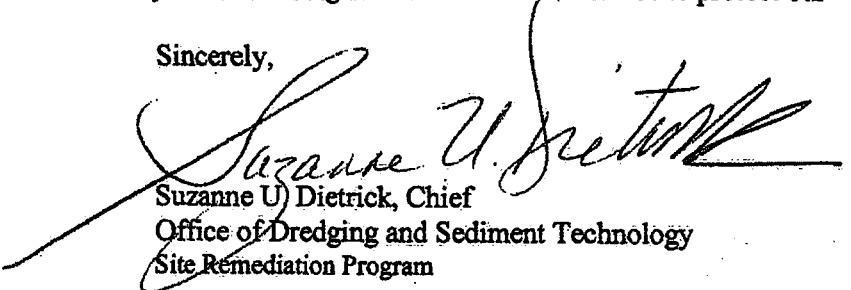
You are required to keep a copy of your permit and the approved drawings at the construction site for the duration of the project. Failure to do so is a violation of the permit.

If you are required to record a Grant of Conservation Restriction/Easement, you must present the Department with proof that you have recorded it within ninety (90) days of issuance of this permit. You may NOT COMMENCE CONSTRUCTION until you have properly recorded the Division of Land Use Regulation approved Grant of Conservation Restriction/Easement documents and fulfilled the pre-construction conditions of this permit.

If a tidelands grant, lease or license is required as a condition of this permit, you may not begin construction until the Bureau of Tidelands Management has delivered the necessary conveyances. Construction prior to the receipt of the necessary conveyances is in violation of State law and will subject you to fines up to \$1,000.00 plus \$100.00 per day. Furthermore, the cost for the tidelands instrument may be higher since the property claimed will be appraised as improved property. You may be required to remove any unauthorized structures placed in tidelands claimed areas.

Please do not hesitate to contact the Office's project manager, listed on the first page of the permit, to discuss any concerns or questions you may have. Thank you for working with the staff of the Office to protect our state's natural resources.

Sincerely,



Suzanne U Dietrick, Chief  
Office of Dredging and Sediment Technology  
Site Remediation Program

C: James Cannon, NY District, ACOE, Regulatory Branch  
Chris Kanakis, SRP, OBR

Mr. Edward Als  
Remedial Project Manager  
US EPA Region 2  
New York Remediation Branch  
290 Broadway, 20<sup>th</sup> Floor  
New York, NY 10007-1866

## ADJUDICATORY HEARING REQUEST CHECKLIST AND TRACKING FORM

### I. Permit Being Appealed:

Facility Name \_\_\_\_\_

Issuance Date of Final Permit Decision \_\_\_\_\_

Permit Number \_\_\_\_\_

### II. Person Requesting Hearing:

Name/Organization \_\_\_\_\_

Name of Attorney (if applicable) \_\_\_\_\_

Address \_\_\_\_\_

Address of Attorney \_\_\_\_\_

Telephone Number \_\_\_\_\_

Telephone Number of Attorney \_\_\_\_\_

### III. Please include the following information as part of your request:

- A. The date the permittee received the permit;
- B. A copy of the Denial of Permit and a list of all issues being appealed;
- C. The legal and factual questions at issue;
- D. A statement as to whether you raised each legal and factual issue during the public comment period;
- E. An estimate of the amount of time required for the hearing;
- G. A request, if necessary, for a barrier-free hearing location for disabled persons;
- H. A clear indication of any willingness to negotiate a settlement with the Department prior to the Department's processing of your hearing request to the Office of Administrative Law; and
- I. This form, completed, signed and dated with all of the information listed above, including attachments, to:

- 1. Office of Legal Affairs  
ATTENTION: Adjudicatory Hearing Requests  
Department of Environmental Protection  
401 East State Street  
PO Box 402, Trenton, New Jersey 08625-0402
- 2. Suzanne Dietrick, Chief  
Office of Dredging and Sediment Technology  
401 East State Street  
PO Box 028, Trenton, New Jersey 08625-0029
- 3. Any other person named on the permit (if you are a permittee under that permit).
- 4. The permittee(s) (if you are a person seeking consideration as a party to the action).

IV. Signature: \_\_\_\_\_

Date: \_\_\_\_\_

## PROJECT COMPLETION REPORT

This Project Completion Report must be mailed or faxed to the proper address below. Please circle the appropriate permit type(s).

Please mail notice of completion of projects authorized under a **Freshwater Wetlands Individual, General Permit or Transition Area Waiver, Major or Minor Stream Encroachment Permit, or Highlands Approval** to:

State of New Jersey  
Department of Environmental Protection  
Coastal & Land Use Compliance & Enforcement  
P.O. Box 422  
Trenton, NJ 08625-0422  
Attention: Manager, Coastal & Land Use Compliance & Enforcement  
Fax to: (609) 633-6798

Please mail notice of completion of projects authorized under an **Individual CAFRA or Waterfront Development Permit or Coastal General Permit** to:

State of New Jersey  
Department of Environmental Protection  
Coastal & Land Use Compliance & Enforcement  
1510 Hooper Avenue  
Toms River, NJ 08753  
Attention: Manager, Coastal & Land Use Compliance & Enforcement  
Fax to: (732) 255-0877

### Permit Information

Project Manager: \_\_\_\_\_  
Permit Number(s): \_\_\_\_\_  
\_\_\_\_\_

Date of Completion: \_\_\_\_\_

The undersigned hereby certifies that all activities approved by the Department within the above referenced permit/s have been constructed and completed in accordance with the plans approved therein, that said project is in compliance with all terms and conditions of the permit, and that any unauthorized encroachments have been removed.

Engineer's Signature and Seal: \_\_\_\_\_  
New Jersey License Number: \_\_\_\_\_  
Date: \_\_\_\_\_

## **CONSTRUCTION REPORT**

This Project Commencement Report must be mailed or faxed to the proper address below. Please circle the appropriate permit type(s).

Please mail notice of commencement of projects authorized under a **Freshwater Wetlands Individual, General Permit or Transition Area Waiver, Major or Minor Stream Encroachment Permit, or Highlands Approval** to:

State of New Jersey  
Department of Environmental Protection  
Coastal & Land Use Compliance & Enforcement  
P.O. Box 422  
Trenton, NJ 08625-0422  
Attention: Manager, Coastal & Land Use Compliance & Enforcement  
Fax to: (609) 633-6798

Please mail notice of commencement of projects authorized under an **Individual CAFRA or Waterfront Development Permit or Coastal General Permit** to:

State of New Jersey  
Department of Environmental Protection  
Coastal & Land Use Compliance & Enforcement  
1510 Hooper Avenue  
Toms River, NJ 08753  
Attention: Manager, Coastal & Land Use Compliance & Enforcement  
Fax to: (732) 255-0877

### **Permit Information**

Project Manager: \_\_\_\_\_

Permit Number(s): \_\_\_\_\_

Date of Commencement: \_\_\_\_\_

I hereby give notice that construction will begin on the above noted project on the date stated above (must give at least 7 days notice). Also, as required by the permit, a copy of the above referenced permit(s) along with all approved drawings shall be available for inspection at the project site throughout construction.

Engineer's Signature and Seal: \_\_\_\_\_

New Jersey License Number: \_\_\_\_\_

Date: \_\_\_\_\_



DEPARTMENT OF ENVIRONMENTAL PROTECTION  
**SITE REMEDIATION PROGRAM**  
**OFFICE OF DREDGING AND SEDIMENT TECHNOLOGY**  
401 East State Street, P.O. Box 028  
Trenton, NJ 08625



## PERMIT

In accordance with the laws and regulations of the State of New Jersey, the Department of Environmental Protection hereby grants this permit to perform the activities described below. This permit is revocable with due cause and is subject to the limitations, terms and conditions listed below and on the attached pages. For the purpose of this document, "permit" means "approval, certification, registration, authorization, waiver, etc." Violation of any term, condition or limitation of this permit is a violation of the implementing rules and may subject the permittee to enforcement action.

Approval Date  
March 26, 2010

Expiration Date  
March 25, 2015

**Permit Number/s**

0907-09-0007.1

FHA 080001

WFD080001

CDT080001

**Type of Approval/s**

In-Water Waterfront Development

Flood Hazard Area Permit

Water Quality Certification Waterfront

**Enabling Statute/s**

NJSA 12:5-3

NJSA 58:10A

**Applicant**

Standard Chlorine Chemical Company, Inc.

1025-1035 Belleville Turnpike

Kearny, NJ 07032

Tierra Solutions, Inc.

Two Tower Center

Boulevard - 10 Floor

East Brunswick, NJ 08816

**Project Location**

Interim Response Action

Standard Chlorine Chemical Company, Inc.

1025-1035 Belleville Turnpike

Kearny, Hudson County

Interim Response Action

Diamond Site

1015 Belleville Turnpike

Kearny, Hudson County

**Description of Authorized Activities and Limit of Disturbance**

Construction activities associated with the interim remedial action of the 25-acre Standard Chlorine Chemical Company, Inc (SCCC) site and the 27-acre Diamond Site located on the Hackensack River in Kearny, New Jersey. The remediation of the sites are being implemented pursuant to a Interim Response Action Workplan (IRAW) Addendum approved by the Department on March 27, 2008. The Department's Site Remediation Program is currently reviewing an IRAW addendum submitted on October 2008.

The construction activities authorized under this permit consist of the following:

- Removal of approximately 6,800 cu yd of sediments to a depth of approximately 3 feet or to the meadowmat/confining unit in the Hackensack River along the eastern shoreline. Sediment removal will occur approximately 50' waterward of the Sheetpile to be installed along the existing shoreline. The material will be removed using a long reach excavator(s) from the shoreline and placed in either on-site consolidation areas or lagoons which are also being remediated as part of the IRAW or disposed off at an off-site location approved by the Department's Site Remediation Program. The area disturbed during removal of the sediments will be restored to pre-existing elevations using clean fill material.
- Construction of a shurry wall system enclosing both the SCCC and Diamond Site. Construction of approximately 1,220 feet of steel sheet pile along the Hackensack River at or above the Mean High Water Line elevation of 3.38 feet.
- Installation of groundwater extraction and/or recovery wells, and associated piping within the 100-year floodplain and areas of the sites under New Jersey Meadowland Commission (NJMC) jurisdiction. A portion of the well system is proposed to be installed on the adjacent Koppers Seaboard Site owned by Hudson County Improvement Authority.

**SEE PROJECT DESCRIPTION ON PAGE 2 OF THE PERMIT**

Prepared by

**THIS PERMIT IS NOT EFFECTIVE AND NO CONSTRUCTION APPROVED BY THIS PERMIT, OR OTHER REGULATED ACTIVITY, MAY BE UNDERTAKEN UNTIL THE APPLICANT HAS SATISFIED ALL PRE-CONSTRUCTION CONDITIONS AS SET FORTH IN THIS PERMIT PURSUANT TO N.J.A.C. 7:27E-1.5(b)(4).**

Received or Recorded by County  
Clerk

**This permit is not valid unless authorizing signature appears on the last page.**



## PROJECT DESCRIPTION (Continued)

- Construction of a groundwater treatment system at elevation 11.0 feet. A temporary surcharge pile will be located in the area of the proposed concrete pad for the groundwater treatment system.
- The removal of contaminated sediment from the South Ditch. The sediment will be placed in the SCCC Consolidation Area. The South Ditch will be converted to a stormwater piping system with discharge to the Hackensack River. The existing 24 inch outfall pipe into the Hackensack River will be reconstructed with a new tide check valve.
- The existing lagoons located on the SCCC site will be dewatered and then backfilled with contaminated soil and/or sediment from other remedial activities at the SCCC site. Once placed, the entire SCCC consolidation area will be capped with an interim surface cover.
- Soil and/or sediment from remedial activities at the Diamond site will be placed in the Diamond Consolidation Area and capped with an interim surface cover.
- A total of 0.06 acres (2,614 square feet) of tidal emergent wetlands included in a total of 1.4 acres (61,000 square feet) of intertidal subtidal shallows will be disturbed for the installation of the steel sheet pile wall and sediment excavation in the Hackensack River. Mitigation is required for this impact.
- A total of 1.59 acres of existing freshwater emergent wetlands and existing isolated wetlands will be permanently disturbed during remedial activities. Mitigation is required for this impact.

The site is located entirely within the New Jersey Meadowlands District. This permit is authorized under, and in compliance with the following Rules on Coastal Zone Management, N.J.A.C. 7:7E-1.1 et seq., specifically; Intertidal and Subtidal Shallows (7:7E-3.15), Wetlands (7:7E-3.27) and Hackensack Meadowlands District (7:7E-3.45). This permit also includes a Water Quality Certification issued pursuant to Section 401 of the Federal Clean Water Act (33USC 1251 et seq.).

By issuance of this permit, the State of New Jersey does not relinquish tidelands ownership or claim to any portion of the subject property or adjacent properties. This permit is subject to the permittee receiving the tidelands licences as applied for on December 18, 2009 (DEP File #0907-09-0007.2 TDI090001) and December 22, 2009 (DEP File #0907-09-0007.3 TDI090002) prior to initiation of any construction activities in these designated tideland areas. In addition, this permit is approved subject to, and in accordance with, all applicable Tidelands Grants issued for the Standard Chlorine Company site and the Diamond Site as shown on Tideland Conveyance Map 693-2154 and Property Survey plan dated 7/24/09, last revised 7/29/09 and prepared by Douglas Dykstra, PLS of Dykstra Associates, PC.

The permittee shall allow an authorized Division representative the right to inspect the construction pursuant to N.J.A.C. 7:7E-1.5(b) 4.

## STANDARD CONDITIONS:

1. **Extent of approval:**
  - a. This document grants permission to perform certain activities that are regulated by the State of New Jersey. The approved work is described by the text of this permit and is further detailed by the approved drawings listed herein. All work must conform to the requirements, conditions and limitations of this permit and all approved drawings.
  - b. If you alter the project without prior approval, or expand work beyond the description of this permit, you may be in violation of State law and may be subject to fines and penalties. Approved work may be altered only with the prior written approval of the Department.
  - c. You must keep a copy of this permit and all approved drawings readily available for inspection at the work site.
2. **Acceptance of permit:** If you begin any activity approved by this permit, you thereby accept this document in its entirety, and the responsibility to comply with the terms and conditions. If you do not accept or agree with this document in its entirety, do not begin construction. You are entitled to request

an appeal within a limited time as detailed on the attached *Administrative Hearing Request Checklist and Tracking Form*.

3. **Recording with County Clerk:** You must record this permit in the Office of the County Clerk for each county involved in this project. You must also mail or fax a copy of the front page of this permit to the Department showing the received stamp from each County Clerk within 30 days of the issuance date.
4. **Notice of Construction:** You must notify the Department in writing at least 7 days before you begin any work approved by this permit by submitting the attached construction report. The Construction Reports are also available at [www.nj.gov/dep/landuse](http://www.nj.gov/dep/landuse).
5. **Expiration date:** All activities authorized by this permit must be completed by the expiration date shown on the first page unless otherwise extended by the Division. At that time, this permit will automatically become invalid and none of the approved work may begin or continue until a replacement permit is granted. (Some permits may qualify for an extension of the expiration date. Please contact the Department for further information.)
6. **Rights of the State:**
  - a. This permit is revocable and subject to modification by the State with due cause.
  - b. Representatives from the State have the statutory authority to enter and inspect this site to confirm compliance with this permit and may suspend construction or initiate enforcement action if work does not comply with this permit.
  - c. This permit does not grant property rights. The issuance of this permit shall not affect any action by the State on future applications, nor affect the title or ownership of property, nor make the State a party in any suit or question of ownership.
7. **Other responsibilities:** You must obtain all necessary local, Federal and other State approvals before you begin work. All work must be stabilized in accordance with the *Standards for Soil Erosion and Sediment Control in New Jersey*, and all fill material must be free of toxic pollutants in toxic amounts as defined in section 307 of the Federal Act.

#### SPECIAL CONDITIONS:

8. The permittee shall immediately inform the Department of any unanticipated adverse effects on the environment not described in the application or in the conditions of this permit.
9. **Consistency with the Areawide Water Quality Management Plan:** The Department of Environmental Protection, as the Statewide Water Quality Management Planning Agency, has reviewed your project for consistency with the provisions and recommendations of the Hudson County Water Quality Management Plan. We have found your project to be consistent with this plan. Please be advised that if changes are made to the proposed plans which would result in a change in anticipated wastewater flow volumes, such as the addition of sewage generating structures or a proposed increase in size to previously proposed structures; or if there is a change in the proposed method of wastewater treatment, this determination is no longer valid. The amended plans must be submitted to the Department to determine Consistency with the Water Quality Management Plans.
11. All necessary local, Federal, and other State approvals must be obtained by the applicant prior to the commencement of the herein-permitted activities.
12. The drawings hereby approved are:

T-01, E-01, IRA-01, ESA-01 to 02, SSP-01 to SSP-04, CBS-01 to CBC-04, SD-01 to SD-02, SC-CA-01 to SC-CA-03, DS-CA-01 to DS-CA-03, SM-01 to SM-03, DW-01, SWM-01 to SWM-04, SPA-01 to SPA-03 and MTG-01 to MTG-04 consisting of thirty-six sheets entitled "Land Use Regulation Permit Application Drawings, SCCC and Diamond Sites, Kearny, Hudson County, New Jersey, dated 9/1/09 last

revised 11/23/09 (Sheet E-01 only), and prepared by Alan E. Briggs, P.E. of Key Environmental Incorporated.

13. This authorization of activities includes a transition area waiver for work in the transition area determined by the Department, which is necessary to accomplish the regulated activity. In addition, the permit to conduct a regulated activity in a wetland or open water includes the Department's approval of a Water Quality Certificate for these activities.
14. The permittee shall comply with the conditions specified in the Interim Response Action Workplan (IRAW) Addendum approved by the Department on March 27, 2008, and any amendments thereto as approved by the Department's Site Remediation Program.
15. The permittee shall install a turbidity curtain along the entire length of the sediment removal as depicted on the approved plans. Said turbidity curtains shall be maintained during the entire removal action within the Hackensack River.
16. Any future development on this site located in the Flood Hazard Area or in a riparian zone or any development which will increase the stormwater discharge, shall require a new Flood Hazard Area Permit from the Division of Land Use Regulation.
17. Any future development on the site shall comply with the Public Trust Rights Rule (7:7E-8.11). Said public access shall comply with the standards found at 7:7E-8.11(e) for development along the Hackensack River.

#### MITIGATION CONDITIONS:

Failure to comply with the standards herein constitutes a violation of the Rules on Coastal Zone Management and subjects the permittee to appropriate enforcement action and/or suspension or revocation of the permit. **This permit is not effective for the purpose of conducting regulated activities authorized by this permit until the following special conditions are satisfied:**

1. Mitigation must be done prior to or concurrent with regulated activity. At any given time, the mitigation must track at the same or greater percentage of completion as the project as a whole. For example, when the project is 50 percent completed, the mitigation project cannot be less than 50 percent completed.
2. The mitigation proposal must be submitted to the Division **prior to the initiation of regulated activities authorized by this permit**. Mitigate for the loss of 0.06 acres of estuarine wetlands and 1.4 acres of intertidal subtidal shallows through either an on-site or off-site creation, restoration or enhancement project as detailed in condition numbers 4 through 20.
3. Mitigation for the loss of 1.59 acres of freshwater emergent wetlands is required by the United States Environmental Protection Agency, Region 2 under CERCLA. The permittee shall provide the Department with the approval letter from the USEPA Region 2 of the mitigation plan.
4. **Within 30 days of the issuance of this permit**, for an on-site or off-site individual mitigation project, the permittee must submit a mitigation proposal to the Division of Land Use Regulation (Division) for review and approval. The mitigation proposal must include the creation, restoration and/or enhancement of an area of tidal wetlands and intertidal subtidal shallows of equal ecological value to those that will be lost by the authorized activity. This proposal must include a proposed construction schedule for the mitigation project. **Prior to commencement of regulated activities authorized by this permit, the Division must approve of the proposed mitigation project in writing.** Failure to comply with Items a. and b. below will subject the permittee to appropriate enforcement action.
  - a. **Within 30 days of the issuance of this permit** submit for review and approval a conceptual plan showing the location and proposed hydrology of the mitigation site.

- b. **Within 30 days of receiving Division approval of the conceptual mitigation proposal, the permittee must submit a final design of the mitigation project and include all the items listed on the checklist entitled Checklist for Completeness: Creation, Restoration or Enhancement for a Freshwater Wetland Mitigation Proposal located on the Internet at <http://www.nj.gov/dep/landuse/forms/index.html>.**
5. In the event that there is a conflict between the permit conditions and the approved mitigation plans and proposal, the permit conditions take precedent.
  6. This permit is not effective until the permittee has completed, signed and filed with the County Clerk (the Registrar of Deeds and Mortgages in some counties), the Division approved conservation restriction for the mitigation site. An example copy of the Wetlands Mitigation Area Model Deed/Conservation Restriction is located on the Internet at <http://www.nj.gov/dep/landuse/forms/index.html>). A draft copy of the deed restriction must be submitted to the Department for review and approval prior to filing the conservation restriction in the office of the County Clerk. The restriction shall be included on the deed, and recorded in the office of the County Clerk (the Registrar of Deeds and Mortgages in some counties), in the county wherein the lands of the mitigation project are located, within 10 days of approval of the final wetland mitigation proposal. Within 10 days of filing the conservation restriction, the permittee must send a copy of the conservation restriction to the Division for verification.
  7. At least thirty (30) days in advance of the start of construction of the wetland mitigation project, the permittee shall notify the Division, in writing, for an on-site pre-construction meeting between the permittee, the contractor, the consultant and the Division.
  8. The mitigation designer must be present on-site during critical stages of construction of the mitigation project. This includes but is not limited to herbicide applications, sub-grade inspection, final grade inspection, and planting inspection to ensure the intent of the mitigation design and its predicted wetland hydrology is realized in the landscape.
  9. Mitigation designs are not static documents and changes may be necessary to ensure success of the project. Should the mitigation designer determine that the mitigation plan as designed and approved by the Division will not achieve the proposed wetland condition due to the actual conditions encountered during construction, the mitigation designer must immediately notify the Division. The mitigation designer must propose an alternative plan to achieve the proposed wetland condition that must be approved by the Division in writing. If the Division provides the mitigation designer with comments on the alternative plan, the mitigation designer shall revise the plan to conform to the Division's comments. Solely the Division shall make the determination as to whether or not the alternative plan as submitted conforms to the Divisions comments. Any modifications to the plan that are approved by the Division must be shown on a signed and sealed revised plan. The As-Built plans required as a part of the Construction Completion Report may serve as the signed and sealed revised plans required to be submitted as part of the construction modification process described above if time constraints warrant such action and have been approved by the Division in writing.
  10. The permittee shall assume all liability for accomplishing corrective work should the Division determine that the compensatory mitigation has not been 100% successful. Remedial work may include re-grading and/or replanting the mitigation site. This responsibility is incumbent upon the permittee until such time that the Division makes the finding that the mitigation project is successful.
  11. Within 5 days following final grading of the site, a disc must be run over the site to eliminate compaction. The mitigation designer must be present to oversee this phase of the project and confirm with the Division this activity has occurred prior to planting of the site.
  12. Following the final grading of the mitigation site and prior to planting, the permittee shall notify the Division for a post-grading construction meeting between the permittee, contractor, consultant and the Division. The permittee must give the Division at least thirty (30) days notice prior to the date of this meeting.

13. Within 30 days following the final planting of the mitigation project, the permittee shall submit a Construction Completion Report to the Division detailing as-built conditions (see below) and any changes to the approved mitigation plan that were made during construction. The Construction Completion Report shall contain, at a minimum, the following information:
- A completed Wetland Mitigation Project Completion of Construction Form. This form is located on the Internet at <http://www.nj.gov/dep/landuse/forms/index.html> and certifies that the mitigation project has been constructed as designed and that the proposed area of wetland creation, restoration or enhancement has been accomplished;
  - As-Built plans which depict final grade elevations at one foot contours and include a table of the species and quantities of vegetation that were planted including any grasses that may have been used for soil stabilization purposes;
  - Show on the as-built plans that the boundaries of the wetland mitigation area have been visibly marked with 3 inch white PVC pipe extending 4 feet above the ground surface. The stakes must remain on the site for the entire monitoring period;
  - Photos of the constructed wetland mitigation project with a photo location map as well as the GPS waypoints in NJ state plane coordinates NAD 1983;
  - To document that the required amount of soil has been placed/replaced over the entire area of the mitigation site, provide a minimum of 6 soil profile descriptions to a depth of 20 inches. The location of each soil profile description should be depicted on the as built plan as well as provide the GPS waypoints in NJ state plane coordinates NAD 1983;
  - Submit soil test results demonstrating at least 8% organic carbon content (by weight) was incorporated into the A-horizon for sandy soil and for all other soil types 12% organic content or if manmade top soil was used it consisted of equal volumes of organic and mineral materials;
  - The permittee shall post the mitigation area with several permanent signs as shown on the approved mitigation plan which identify the site as a wetland mitigation project and that development mowing, cutting, dumping and draining of the property is prohibited; and
  - The signs must also state the name of the permittee, Department's permit number along with a contact name and phone number.
14. If the Division determines that the mitigation project is not constructed in conformance with the approved plan, the permittee will be notified in writing and will have 60 days to submit a proposal to indicate how the project will be corrected. No financial surety will be released by the Division until the permittee demonstrates that the mitigation project is constructed in conformance with the approved plan, all soil has been stabilized and there is no active erosion.
15. The permittee shall monitor the mitigation project for 5 full growing seasons if it is a proposed forested or scrub/shrub wetland and 3 full growing seasons for an emergent wetland or State open water beginning the year after the mitigation project has been completed. The permittee shall submit monitoring reports to the Division of Land Use Regulation no later than December 31<sup>st</sup> of each full monitoring year. All monitoring reports must include the standard items identified in the checklists entitled Wetland Mitigation Monitoring Project Checklist and Tidal Wetland Mitigation Monitoring Checklist and the information requested below. The Wetland Mitigation Monitoring Project Checklist and Tidal Wetland Mitigation Monitoring Checklist are located on the Internet at <http://www.nj.gov/dep/landuse/forms/index.html>.
16. All monitoring reports must include all of the following information:
- All monitoring reports except the final one must include documentation that it is anticipated, based on field data, that the goals of the wetland mitigation project including the transition area, as stated in the approved wetland mitigation proposal and the permit will be satisfied. If the permittee is finding

problems with the mitigation project and does not anticipate the site will be a full success then recommendations on how to rectify the problems must be included in the report with a time frame in which they will be completed;

- b. All monitoring reports except the final one must include field data to document that the site is progressing towards 85 percent survival and 85 percent area coverage of mitigation plantings or target hydrophytes (Target hydrophytes are non-invasive native species to the area and similar to ones identified on the mitigation planting plan). If the proposed plant community is a scrub/shrub or a forested wetland the permittee must also demonstrate each year with data that the woody species are thriving, increasing in stem density and height each year. If the field data shows that the mitigation project is failing to meet the vegetation survival, coverage and health goals, the monitoring report should contain a discussion of steps that will be taken to rectify the problem, including a schedule of implementation;
- c. All monitoring reports except the final one must include documentation of any invasive or noxious species (see below for list of species) colonizing the site and how they are being eliminated. The permittee is required to eliminate either through hand-pulling, application of a pesticide or other Department approved method any occurrence of an invasive/noxious species on the mitigation site during the monitoring period;
- d. All monitoring reports except the final one must include documentation that demonstrates the proposed hydrologic regime as specified in the mitigation proposal appears to be met. If the permittee is finding problems with the mitigation project and does not anticipate the proposed hydrologic regime will be or has not been met then recommendations on how to rectify the problem must be included in the report along with a time frame within which it will be completed;
- e. The final monitoring report must include documentation to demonstrate that the goals of the wetland mitigation project including the required transition area, as stated in the approved wetland mitigation proposal and the permit, has been satisfied. Documentation for this report will also include a field wetland delineation of the wetland mitigation project based on techniques as specified in the Federal Manual for Identifying and Delineating Jurisdictional Wetlands (1989);
- f. The final monitoring report must include documentation the site has an 85 percent survival and 85 percent area coverage of the mitigation plantings or target hydrophytes. The permittee must also document that all plant species are healthy and thriving and if the proposed plant community contains trees demonstrate that the trees are at least five feet in height;
- g. The final monitoring report must include documentation demonstrating the site is less than 10 percent occupied by invasive or noxious species such as but not limited to (Source: Snyder, David and Sylvan R. Kaufman. 2004. An overview of nonindigenous plant species in New Jersey. New Jersey Department of Environmental Protection, Division of Parks and Forestry, Office of Natural Lands Management, Natural Heritage Program, Trenton, New Jersey. 107 pages.): *Acer platanoides* (Norway Maple), *Ailanthus altissima*, (Tree of Heaven), *Allaria petiole* (Garlic mustard), *Ampelopsis brevipedunculata* (Porecelain berry), *Berberis thunbergii* (Japanese barberry), *Carex kobomugi* (Japanese sedge), *Celastrus orbiculatus* (Asian Bittersweet), *Centaurea biebersteinii* *maculosa* (Spotted knapweed), *Cirsium arvense* (Canadian thistle), *Dipsacus fillosum* (Wild teasel), *Dipsacus laciniatus* (Cut-leaf teasel), *Elaeagnus umbellata* (Autumn olive), *Euonymus alata* (Winged spindletree), *Lespedeza cuneata* (Chinese bush-clover), *Lonicera japonica* (Japanese honeysuckle), *Lonicera morrowii* (Morrow's bush honeysuckle), *Lonicera tartarica* (Tartarian honeysuckle), *Lythrum salicaria* (Purple loosestrife), *Melilotus officinalis* (Yellow sweetclover), *Microstegium vimineum* (Japanese stiltgrass), *Myriophyllum spicatum* (Eurasian water-milfoil), *Polygonum cuspidatum* (Japanese knotweed), *Polygonum perfoliatum* (Mile-a-minute), *Potamogeton crispus* (Curly leaf pondweed), *Ranunculus ficaria* (Lesser celandine), *Rhamnus cathartica* (Common buckthorn), *Robinia pseudoacacia* (Black locust), *Rosa multiflora* (Multiflora rose), *Rubus phoenicolasius* (Wineberry).

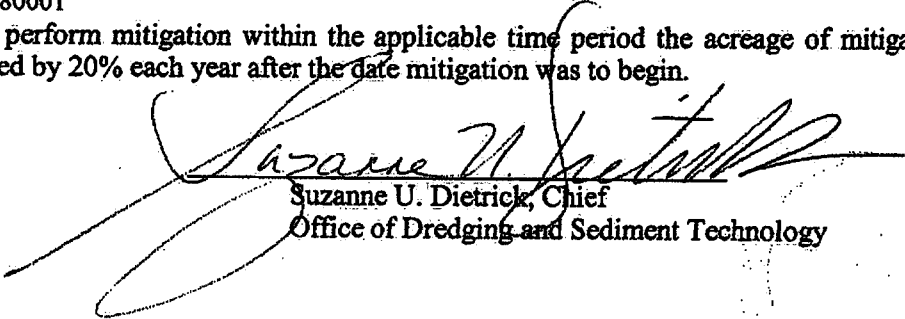
- h. The final monitoring report must include documentation that demonstrates that the proposed hydrologic regime as specified in the mitigation proposal, which proves the mitigation site is a wetland has been satisfied. The documentation shall include when appropriate monitoring well data, stream gauge data, photographs and field observation notes collected throughout the monitoring period; and
    - i. The final monitoring report must include documentation that the site contains hydric soils or there is evidence of reduction occurring in the soil throughout the delineated wetlands.
- 17. Once the required monitoring period has expired and the permittee has submitted the final monitoring report, the Division will make the finding that the mitigation project is either a success or a failure. This mitigation project will be considered successful if the permittee demonstrates all of the following:
  - a. That the goals of the wetland mitigation project including acreage and the required transition area, as stated in the approved wetland mitigation proposal and the permit, has been satisfied. The permittee must submit a field wetland delineation of the wetland mitigation project based on the Federal Manual for Identifying and Delineating Jurisdictional Wetlands (1989) which shows the exact \_\_\_\_ acreage of State open waters, emergent, scrub/shrub and/or forested wetlands in the mitigation area;
  - b. The site has an 85 percent survival and 85 percent area coverage of the mitigation plantings or target hydrophytes which are species native to the area and similar to ones identified on the mitigation planting plan. All plant species in the mitigation area are healthy and thriving. All trees are at least five feet in height;
  - c. The final monitoring report must include documentation demonstrating the site is less than 10 percent occupied by invasive or noxious species such as but not limited to (Source: Snyder, David and Sylvan R. Kaufman. 2004. An overview of nonindigenous plant species in New Jersey. New Jersey Department of Environmental Protection, Division of Parks and Forestry, Office of Natural Lands Management, Natural Heritage Program, Trenton, New Jersey. 107 pages.): *Acer platanoides* (Norway Maple), *Ailanthus altissima*, (Tree of Heaven), *Allaria petiole* (Garlic mustard), *Ampelopsis brevipedunculata* (Porecelain berry), *Berberis thunbergii* (Japanese barberry), *Carex kobomugi* (Japanese sedge), *Celastrus orbiculatus* (Asian Bittersweet), *Centaurea biebersteinii* *maculosa* (Spotted knapweed), *Cirsium arvense* (Canadian thistle), *Dipsacus fillosum* (Wild teasel), *Dipsacus laciniatus* (Cut-leaf teasel), *Elaeagnus umbellata* (Autumn olive), *Euonymus alata* (Winged spindle tree), *Lespedeza cuneata* (Chinese bush-clover), *Lonicera japonica* (Japanese honeysuckle), *Lonicera morrowii* (Morrow's bush honeysuckle), *Lonicera tartarica* (Tartarian honeysuckle), *Lythrum salicaria* (Purple loosestrife), *Melilotus officinalis* (Yellow sweetclover), *Microstegium vimineum* (Japanese stiltgrass), *Myriophyllum spicatum* (Eurasian water-milfoil), *Polygonum cuspidatum* (Japanese knotweed), *Polygonum perfoliatum* (Mile-a-minute), *Potamogeton crispus* (Curly leaf pondweed), *Ranunculus ficaria* (Lesser celandine), *Rhamnus cathartica* (Common buckthorn), *Robinia pseudoacacia* (Black locust), *Rosa multiflora* (Multiflora rose), *Rubus phoenicolasius* (Wineberry).
  - d. The site contains hydric soils or there is evidence of reduction occurring in the soil; and,
  - e. The proposed hydrologic regime as specified in the mitigation proposal has been satisfied. This criteria must be satisfied to prove the mitigation site is a wetland.
- 18. All remaining financial surety, if required, will be released concurrent with the Division notifying the permittee that the mitigation project is a success.
- 19. If the mitigation project is considered a failure, the permittee is required to submit a revised mitigation plan in order to meet the success criteria identified in Condition No. 18 above. The plan shall be submitted within 30 days of receipt of the letter from the Division indicating the wetland mitigation project was a failure. The financial surety, if required, will not be released by the Division until such time that the permittee satisfies the success criteria as stipulated in condition number 19.

Permit No.: 0907-08-0001.1 FHA 080001

FWW080001, WFD080001, CDT 080001

20. If the permittee fails to perform mitigation within the applicable time period the acreage of mitigation required shall be increased by 20% each year after the date mitigation was to begin.

3/26/10  
DATE

  
Suzanne U. Dietrick, Chief  
Office of Dredging and Sediment Technology





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 2  
290 BROADWAY  
NEW YORK, NY 10007-1866

June 11, 2010

**received**  
6-15-10  
Key, NJ

Pete Sawchuck, Project Manager  
Key Environmental, Inc.  
456 US Highway 22 West, Suite 3  
Whitehouse Station, NJ 08889

Dear Mr. Sawchuck:

This letter is a follow-up to my May 21, 2010 email to you regarding whether the Peninsula Restoration Group (PRG) has satisfactorily addressed federally applicable or relevant and appropriate requirements (ARARs) that potentially affect the interim response actions (IRA) currently planned for the near future at the Standard Chlorine Superfund site (Site), Kearny, NJ. While the IRA is being performed pursuant to a NJ State order, the examination of potential federal ARARs has been considered appropriate because of the Site's recent addition to the National Priorities List of Superfund sites.

To date, EPA's Superfund program has examined relevant information or coordinated with appropriate authorities on federal ARARs relating to cultural resources, federally endangered species, on-site placement of contaminated materials, wetlands and floodplains at the Site. EPA feels that these requirements have been satisfactorily identified and addressed prior to the start of the IRA. Ongoing compliance with these requirements, as appropriate, is also anticipated to continue through the duration of the IRA's performance.

Sincerely,

Edward G. Als, Remedial Project Manager  
Standard Chlorine Superfund Site



# State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION

Division of Land Use Regulation

P.O. Box 439, Trenton, NJ 08625-0439

Tel. 609-292-0060

Fax # (609) 777-3656

[www.state.nj.us/dep/landuse](http://www.state.nj.us/dep/landuse)

**received**  
July 02, 2010

CHRIS CHRISTIE  
Governor

KIM GUADAGNO  
Lt. Governor

BOB MARTIN  
Commissioner

Mr. Peter W. Sawchuck, P.E.  
Project Manager  
Key Environmental Incorporated  
456 Route 22 West  
Suite D  
Whitehouse Station, New Jersey

**JAN 30 2010**

RE: Wetland Mitigation Plan Approval  
NJDEP Application No(s): 0907-09-0007.1 FHA 090001 (Flood Hazard Permit), 0907-09-0007.1 WFD 090001 (In-Water Waterfront Development Permit), 0907-09-0007.1 CDT 0800001 (Water Quality Certificate)  
Project: "Standard Chlorine Chemical Inc. (SCCC) and Tierra Solutions, Inc. (Diamond Site) Interim Response Action"  
Location: Block: 287, Lots 47, 47R, 49, 52, 52R  
City of Kearny, Hudson County

Dear Mr Sawchuck:

The New Jersey Department of Environmental Protection, Division of Land Use Regulation is writing in response to the document entitled "SHORELINE RESTORATION AND TIDAL EMERGENT WETLAND MITIGATION PLAN" (Mitigation Plan), dated April 2010 and prepared by Key Environmental Incorporated. The mitigation plan was prepared to satisfy the mitigation conditions of the above referenced permit issued on March 26, 2010. The permits authorized permanent impacts of 1.34 acres to intertidal subtidal shallows and 0.06 acres of estuarine wetlands for the installation of the steel sheet pile wall and sediment excavation in the Hackensack River. In addition, 1.59 acres of existing freshwater emergent wetlands and isolated wetlands will also be permanently disturbed during remedial activities. Mitigation for impacts to the freshwater emergent wetlands is a requirement of the US EPA.

The Division has reviewed the proposed mitigation project and has determined that the mitigation for intertidal subtidal shallows and estuarine wetlands was prepared in accordance with the Coastal Zone Management Rules. Therefore, the Division hereby approves the mitigation plan. Specifically, the Division is approving the mitigation project shown on the plan entitled, "SHORELINE RESTORATION AND TIDAL EMERGENT WETLAND MITIGATION PLAN SCC AND DIAMOND SITES, KEARNY, HUDSON COUNTY NEW JERSEY, BLOCK 287-LOTS 47, 47R, 49, 52, AND 52R" sheets MTGTE-00-04, dated April, 23, 2010, prepared by Key Environmental Incorporated.

We look forward to working with you in the coming months as this mitigation project progresses. Please contact Jill Aspinwall of my staff at (609) 777-0454 or by email at [Jill.Aspinwall@dep.state.nj.us](mailto:Jill.Aspinwall@dep.state.nj.us), should you have and questions concerning this letter.

Sincerely,



Diane Dow, Section Chief  
Bureau of Technical Services

Cc: Suzanne Dietrick, ODST



James R. Holt, Jr.  
Partner  
610-687-4458 direct dial  
jholt@evergreenenv.com

June 24, 2012

Mr. Peter W. Sawchuck, P.E.  
Vice President  
Key Environmental, Inc  
120 Exchange Street  
Portland, ME 04101

RE: Bill of Sale and Conveyance for 0.225 Wetland Mitigation Credits  
From the Evergreen MRI3 Mitigation Bank ("Bank")  
Between Evergreen Environmental, LLC and the Peninsula Restoration Group

Dear Mr. Sawchuck,

Enclosed please find an executed original Bill of Sale and Conveyance conveying 0.225 Wetland Mitigation Credits ("Credits") from the Bank to the Peninsula Restoration Group. Also enclosed please find copies of the verification letters sent to the U.S. Army Corps of Engineers and the New Jersey Department of Environmental Protection ("NJDEP") to confirm that the Credits have been deducted from the ledger to satisfy the conditions of NJDEP-approved Interim Response Action Work Plan for the Standard Chlorine Chemical Co., Inc. site and the former Diamond Shamrock site, located in the Town of Kearny, New Jersey and the U.S. EPA ARAR Approval for wetlands and the NJDEP Land Use In-Water Waterfront Development, Flood Hazard and Water Quality Certification, No. 0907-0007.1.

Evergreen Environmental is pleased that we were able to assist Key Environmental and your client with this mitigation need. Should you have any additional needs, please feel free to call me at (610) 687-4458.

Sincerely,

James R. Holt, Jr.

Enclosures

## **BILL OF SALE AND CONVEYANCE**

This BILL OF SALE AND CONVEYANCE is made on June 8, 2012 between EVERGREEN ENVIRONMENTAL, LLC ("Grantor"), whose mailing address is 425 Darby Paoli Road, Wayne, PA 19087, and the Peninsula Restoration Group, ("Grantee"), whose mailing address is c/o Key Environmental, Inc, 120 Exchange Street, Portland, ME 04101.

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS, THAT:

1. Grantor, for and in consideration of the purchase price set forth in that certain Agreement for Purchase and Sale of Wetland Mitigation Credits, as amended, the receipt and sufficiency of which are hereby acknowledged, has granted, bargained, sold, conveyed, assigned, delivered (transferred ownership of), and by these presents does hereby grant, bargain, sell, convey, assign and deliver unto Grantee, in accordance with the terms and provisions hereinafter set forth, the following Wetland Mitigation Credits, approved for release by the United States Army Corps of Engineers (USACE) under letter agreement dated May 9, 2012, and enabled pursuant to the terms of the Banking Instrument effective February 7, 2012, by and among Grantor, USACE, and the U. S. Environmental Protection Agency, U.S. Fish and Wildlife Service, National Marine Fisheries Service, New Jersey Department of Environmental Protection and New Jersey Meadowlands Commission:

0.225 wetland mitigation credits ("Credits".)

2. The Grantor acknowledges receipt of the purchase price.
3. The Grantor promises that the Grantor has done no act to encumber the Credits conveyed herein.
4. As to the Credits conveyed herein, the Grantor warrants title, condition, fitness for purpose and gives all other express or implied warranties required or allowed by statutory and common law. Grantee and all persons claiming by, through or under it shall, to the extent permitted by law, be subrogated to all of the rights of Grantor in or with respect to any warranties and covenants made by others with respect to the Credits conveyed hereby.
5. The conveyance set forth herein is made as of the date at the top of the first page.

IN WITNESS WHEREOF, Grantor has caused this Bill of Sale and Conveyance to be executed and attested to by its proper corporate officers and its corporate seal is affixed.

Attest:

EVERGREEN ENVIRONMENTAL, LLC

Lucy B. Long

By

James R. Holt, Jr.  
Title: Manager

COMMONWEALTH OF PENNSYLVANIA §

COUNTY OF DELAWARE §

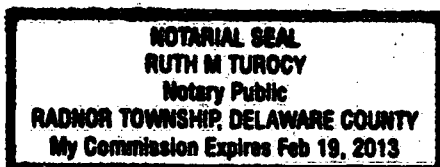
I certify that on June 25, 2012, Lucy Long personally came  
(Attesting Witness' Name)  
before me and stated under oath to my satisfaction that:

- (a) This person is the attesting witness to the signing of the annexed Bill of Sale and Conveyance;
- (b) This Bill of Sale and Conveyance was signed by James R. Holt, Jr.,  
(Executive's Name)  
who is a Manager of Evergreen Environmental, LLC, the Grantor named in the annexed Bill of Sale and Conveyance, and who is fully authorized to and did execute this Bill of Sale and Conveyance on the Grantor's behalf;
- (c) The attesting witness signed this proof under oath to attest to the truth of these facts.

Lucy Long  
Name of Attesting Witness

Signed and Sworn to Before Me  
On this 25<sup>th</sup> day of June, 2012

Ruth M. Turocy  
NOTARY PUBLIC





# EVERGREEN ENVIRONMENTAL

June 26, 2012

Mr. James Cannon  
U.S. Department of the Army  
New York District, Corps of Engineers  
Jacob K. Javits Federal Building,  
Room 1937  
New York, New York 10278-0090

Ms. Susan Lockwood  
Supervising Environmental Specialist  
New Jersey Department of  
Environmental Protection  
Division of Land Use  
P.O. Box 439  
Trenton, New Jersey 08625-0439

**Re: Evergreen MRI3 Mitigation Bank – Credit Ledger Update  
NAN-2010-01411  
Standard Chlorine: NJDEP File 0907-09-0007.1 WFD 090001**

Dear Mr. Cannon and Ms. Lockwood:

Evergreen Environmental, LLC (Evergreen) is pleased to submit the attached updated ledger pursuant to our MBI. The ledger reflects the transfer of 0.225 credit to permittee Standard Chlorine for permitted impact mitigation debt.

Please do not hesitate to contact me should you require further information at 973/305-0643.

Sincerely,  
EVERGREEN ENVIRONMENTAL, LLC

Mark Renna, Vice President

Enclosure

**Evergreen MRI3 Mitigation Bank  
Exhibit E: Crediting and Debiting Ledger  
June 26, 2012**

[illegible]





## State of New Jersey

### DEPARTMENT OF ENVIRONMENTAL PROTECTION

Division of Land Use Regulation  
Mail Code 501-02A, P.O. Box 420,  
Trenton, NJ 08625-0420  
Fax # (609) 777-3656  
[www.state.nj.us/dep/landuse](http://www.state.nj.us/dep/landuse)

CHRIS CHRISTIE  
Governor

KIM GUADAGNO  
Lt. Governor

BOB MARTIN  
Commissioner

Mr. Peter W. Sawchuck, P.E.  
Project Manager  
Key Environmental Incorporated  
575 State Route 28  
Suite 208  
Raritan, New Jersey 08869

March 7, 2013

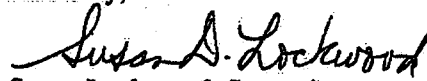
RE: Credit Purchase at MRI 3 Approval and Permit Modification  
NJDEP Application No(s): 0907-09-0007.1 WFD 090001 (In-Water Waterfront  
Development Permit)  
Project: "Standard Chlorine Chemical Inc. (SCCC) and Tierra Solutions, Inc. (Diamond  
Site) Interim Response Action"  
Location: Block: 287, Lots 47, 47R, 49, 52, 52R  
City of Kearny, Hudson County

Dear Mr. Sawchuck:

This letter is in response to your letter dated May 21, 2012 requesting a permit modification to authorize the purchase of 0.225 credits from the MRI 3 Mitigation Bank. The Division had conceptually authorized the credit purchase since a portion of the on-site mitigation could not be constructed properly due to onsite conditions and the fact that there was nowhere else on the site that the mitigation could be provided. The Division received confirmation of the sale of 0.225 credits for the above-referenced permit from the MRI 3 banker on June 26, 2012. This letter hereby modifies the above-referenced permit to authorize the purchase of 0.225 credits from MRI 3 to satisfy a portion of the required mitigation.

We look forward to receiving your completion of construction report and we will contact you to schedule an inspection at that time. Please contact Jo Dale Legg of my staff at (609) 777-0454 or by email at [JoDale.Legg@dep.state.nj.us](mailto:JoDale.Legg@dep.state.nj.us), should you have any questions concerning this letter.

Sincerely,

  
Susan Lockwood, Supervisor  
Bureau of Technical Services  
Division of Land Use Regulation

C: Suzanne Dietrick, ODST

## **APPENDIX 2**

### **VEGETATION COVER DATA**

**Table 1**  
**SCCC Diamond Site**  
**Segment Observations Summary**

Segment Assessed	Estimated Percent Cover	Estimated Percent Survival	Estimated Percent Phragmites/Lythrum Present	Number of Baccharis Present
Segment 1	90%	85%		7
Segment 2	60%	85%		6
Segment 3	50%	90%	5%	5
Segment 4	60%	90%	10%	4
Segment 5	80%	90%	50%	5
Segment 6	80%	90%	40%	3
Segment 7	40%	90%	3%	18
Landfill Channel 1	90%	90%	2%	6
Landfill Channel 2	90%	90%	60%	3
Landfill Channel 3	90%	90%	60%	6
Landfill Channel 4	90%	90%	30%	7
Landfill Channel 5	90%	90%	50%	6
Segment 8	100%	80%	30%	0
Segment 9	100%	80%		8
Segment 10	95%	50%	3%	6
Segment 11	100%	50%	40%	5
Segment 12	100%	75%	75%	4
Landfill Bumpout	100%	90%	90%	3
Segment 13	100%	UNK	90%	3
Segment 14	90%	50%	75%	3
Segment 15	90%	30%	50%	6
Segment 16	95%	80%	3%	5
Segment 17	100%	10%	1%	6
Segment 18	100%	20%		3
Segment 19	100%	50%		4
Segment 20	100%	90%	30%	11
Segment 21	100%	80%	20%	6
Segment 22	100%	20%	80%	9
Segment 23	100%	20%	40%	7
Segment 24	100%	20%	40%	12
Segment 25	100%	20%	20%	15
Segment 26	100%	40%	50%	5
Segment 27	100%	20%	2%	9
	90%	64%	37%	206
	90% Average Cover	64% Average Survival	37% Average Cover Composed of Phragmites/Lythrum	86% Percent Survival of Baccharis

## **APPENDIX 3**

### **PHOTOGRAPHS**

Client: Site Name: SCCC and Former Diamond Site Project Number: 502.014  
Site Location: Kearny, NJ

Photograph 1 - View of western part of the mitigation site November 10, 2011



Photograph 2 - View of central part of the mitigation site November 10, 2011





Client: Site Name: SCCC and Former Diamond Site

Project Number: 502.014

Site Location: Kearny, NJ

**Photograph 3** View of central part of the mitigation site November 10, 2011



**Photograph 4** - View of eastern part of the mitigation site November 10, 2011





Client: Site Name: SCCC and Former Diamond Site

Project Number: 502.014

Site Location: Kearny, NJ

Photograph 5 View of eastern part of mitigation site November 10, 2011



Photograph 6 – View of eastern part of mitigation site in November 2012. Note presence of standing water.





Client: Site Name: SCCC and Former Diamond Site

Project Number: 502.014

Site Location: Kearny, NJ

**Photograph 7** – Central portion of mitigation site, November 2012, immediately after hurricane Sandy.



**Photograph 8** – Central part of wetlands. Note the presence of high levels of common reed in this segment, August 2012.





Client: Site Name: SCCC and Former Diamond Site

Project Number: 502.014

Site Location: Kearny, NJ

Photograph 9 – Central part of the wetland mitigation site, August 2012.



Photograph 10 – Western part of the wetland mitigation site, August 2012.





Client: Site Name: SCCC and Former Diamond Site

Project Number: 502.014

Site Location: Kearny, NJ

**Photograph 11** View of portion of wetland in October 2012 with few invasive species



**Photograph 12** - View of portion of wetland in October 2012, note volunteer cottonwood.





Client: Site Name: SCCC and Former Diamond Site

Project Number: 502.014

Site Location: Kearny, NJ

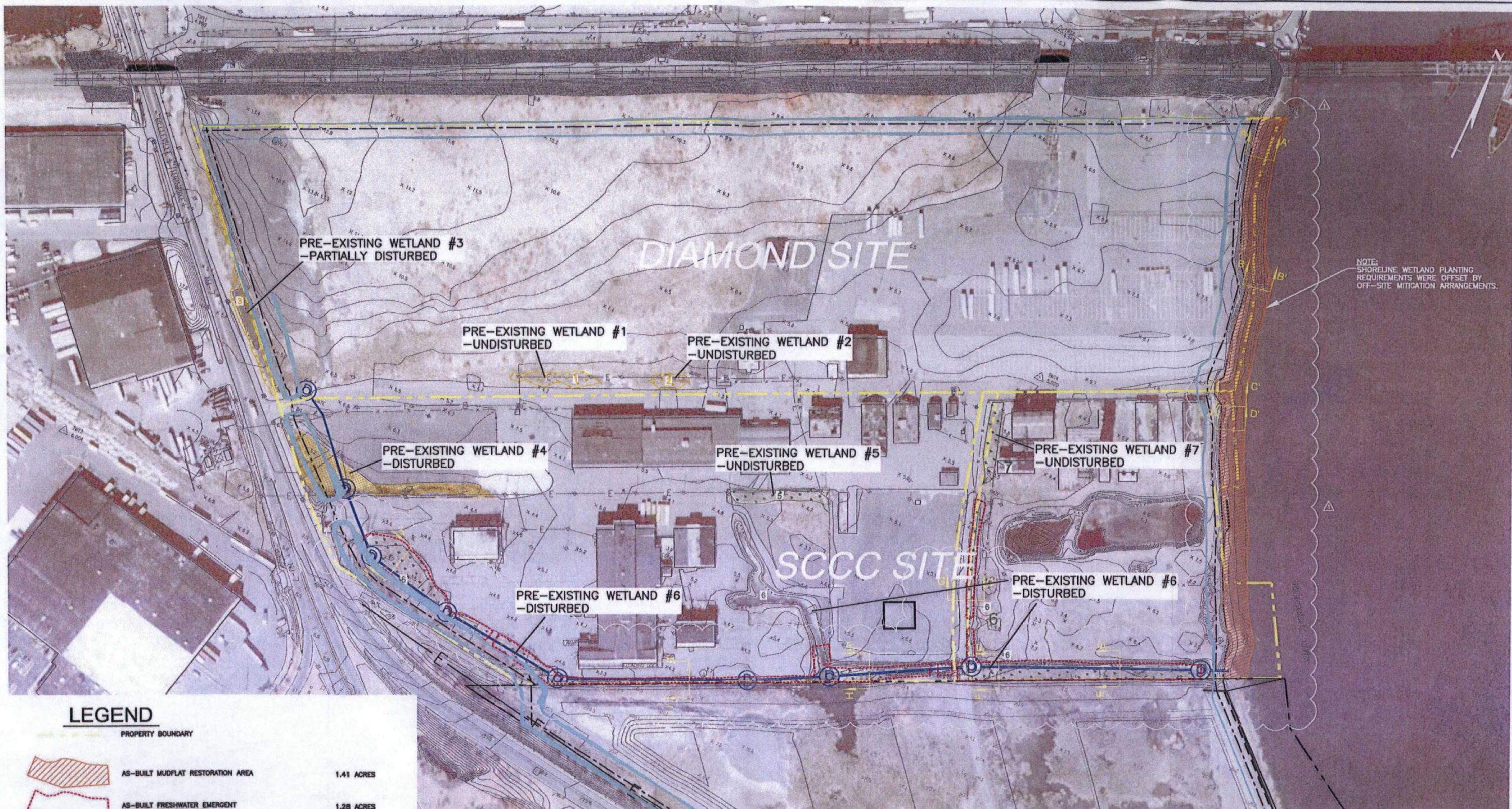
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## **APPENDIX 4**

### **AS-BUILT PLANS**



\\na\proj\shelby\as-built\production\drawings\mtd\mtd-01 shoreline restoration\mtd\mtd-01 shoreline restoration.mxd User: shelby Date: 8/27/2012 3:15 PM Plotted By: Shelby Corcoran 8/27/2012 3:45 PM Scale: 1" = 200'

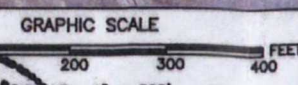


NOTE: SHORELINE WETLAND PLANTING REQUIREMENTS WERE OFFSET BY OFF-SITE MITIGATION ARRANGEMENTS.

# LEGEND

- PROPERTY BOUNDARY
- AS-BUILT MUDFLAT RESTORATION AREA 1.41 ACRES
- AS-BUILT FRESHWATER EMERGENT WETLAND MITIGATION AREA 1.28 ACRES
- TOTAL RESTORATION AREA 2.69 ACRES
- LIMIT OF PRE-EXISTING FRESHWATER EMERGENT WETLAND
- LIMIT OF PRE-EXISTING ISOLATED WETLAND
- CROSS SECTION (SEE DRAWINGS MTG-03 AND MTG-04)
- WETLAND NUMBER
- SLURRY WALL WORKING PLATFORM
- CATCH BASIN
- PIPE

NOTES:  
1. THE LIMITS OF THE FRESHWATER EMERGENT WETLAND MITIGATION AREA WERE FIELD-ADJUSTED BASED UPON THE EXACT POSITION/ALIGNMENT OF THE REMEDIATED SOUTH DITCH SIDESLOPES. THESE ADJUSTMENTS WERE MADE WITHIN THE SOUTH DITCH AREA TO ENSURE THAT THE SPECIFIED MINIMUM MITIGATION AREA OF 1.20 ACRES IS PROVIDED.  
2. AS-BUILT DRAWING WAS PREPARED BASED ON THE CORRESPONDING INTERIM RESPONSE ACTION CIVIL ENGINEERING DESIGN DRAWING. THIS AS-BUILT DRAWING DEPICTS MAJOR CHANGES TO OR DEVIATIONS FROM THE DESIGN DRAWING, AS DOCUMENTED BY FIELD INSPECTION BY KEY'S CGA PERSONNEL. AS-BUILT DIMENSIONS OR MEASUREMENTS MAY VARY SLIGHTLY FROM THOSE DEPICTED ON THIS AS-BUILT DRAWING.



STATE OF NEW JERSEY  
CERTIFICATE OF AUTHORIZATION  
TO OFFER ENGINEERING SERVICES  
24GA27961400

## PENINSULA RESTORATION GROUP

DRWN: WMA	DATE: 08/13/09
CHKD: GWB	DATE: 08/13/09
APPD: GWB	DATE: 08/13/09
SCALE: AS SHOWN	



INTERIM RESPONSE ACTION DESIGN  
SCCC AND DIAMOND SITES  
KEARNY, NEW JERSEY

SHORELINE RESTORATION/WETLAND MITIGATION PLAN	PROJECT NO: 09-803/804 MTG-01
---	----------------------------------

REV	DATE	DESCRIPTION	APPD
1	12/28/11	AS-BUILT	CAZ
2	12/22/09	ISSUED FOR BID	AEB

REFERENCE:  
1. EXISTING GROUND SURFACE CONTOURS PER AIR SURVEY, DULLES, VIRGINIA, APRIL 14, 2001. HORIZONTAL REFERENCE: NEW JERSEY STATE PLANE COORDINATES (NAD 1927). VERTICAL REFERENCE: NATIONAL GEODETIC VERTICAL DATUM (NOVD 1929).  
2. PROPERTY BOUNDARY SHOWN HEREON FROM SHEET 1 OF 1 TITLED "SURVEY OF PROPERTY, TAX LOTS 32.02, 48, 47 & 47R, BLOCK 287, TAX LOTS 48, 49, 50, 51, 52 AND 52R, BLOCK 287, TOWN OF KEARNY, HUDSON COUNTY, NEW JERSEY," DATED JULY 1, 2009 (REVISION 2: JULY 29, 2009), PREPARED BY DTKSTRA ASSOCIATES, PC.  
3. EXISTING WETLANDS PER WETLAND DELINEATION BY PRINCETON HYDRO, LLC FOR KEY ENVIRONMENTAL, INC. PERFORMED IN MARCH 2009.  
4. IMAGE PROVIDED BY PRINCETON HYDRO, LLC.

ISSUE DATE:  
8/22/12  
KEY ENVIRONMENTAL, INC.  
200 THIRD AVENUE  
CARNEGIE, PA 15106